ENGINEERING DOCUMENTATION

Rotary Servo Motor

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-SM-L03-180G-V96-T19P1NM-4000W-002	DRAFT-08 / 27 Aug 2026	Engineering Integration Reference

Integration Overview

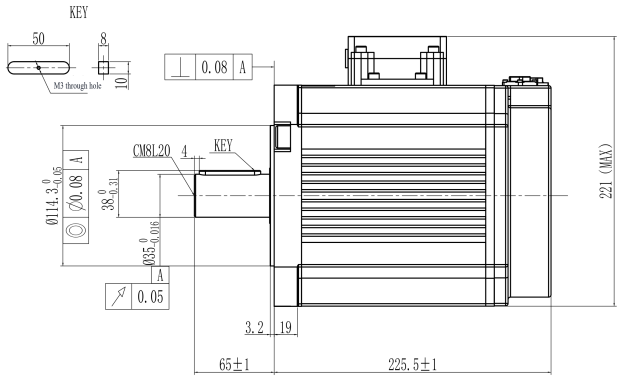
Closed-loop rotary servo motor for specified motion axes. This guide supports mechanical mounting, shaft and coupling integration, feedback and brake planning, cable routing, thermal validation and staged commissioning.

Key Integration Facts

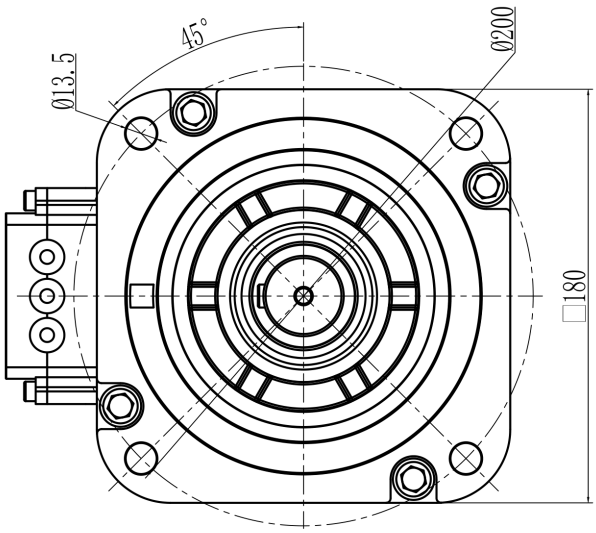
INTEGRATION ITEM	PUBLISHED VALUE
Rated Torque	19.1 N·m
Rated Speed	2000 rpm
Rated Voltage	96 VDC
Flange Size	180 mm

Product Structure & Views

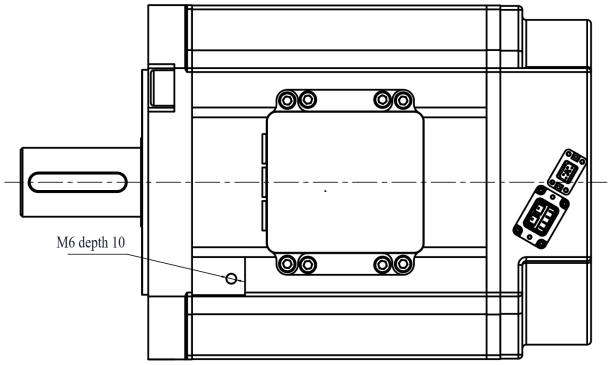
These views present product structure, mounting interfaces and relevant integration geometry for this SKU.



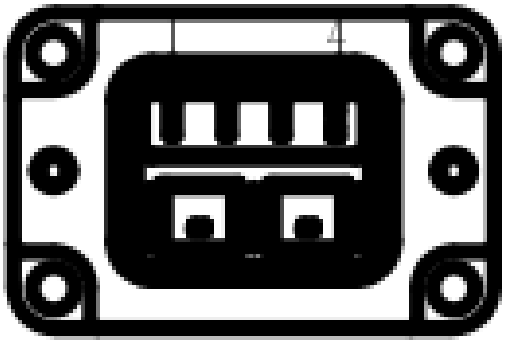
Mechanical View 1



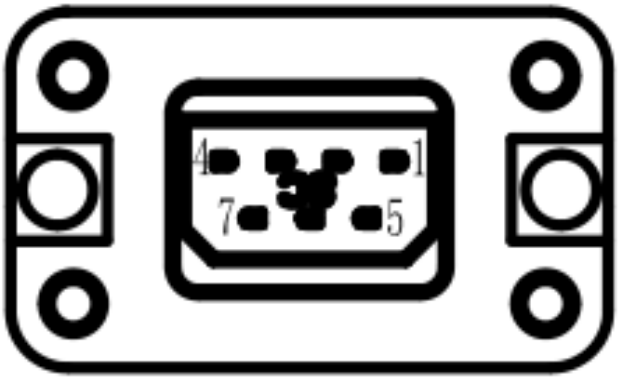
Mechanical View 2



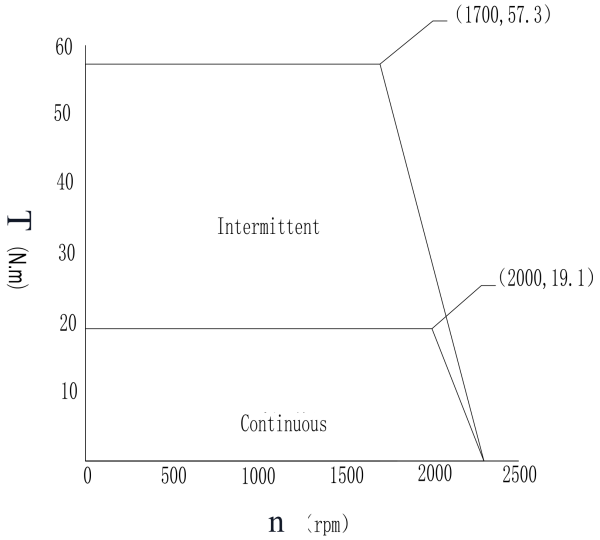
Mechanical View 3



Mechanical View 6



Mechanical View 8



Mechanical View 11

VIEW	FIELD	VALUE
Mechanical View 1	Key identifier	KEY
	Key length	50 mm
	Key width	8 mm
	Threaded through hole	M3 through hole
	Position tolerance to datum A	Position 0.08 A
	Connector pin count or quantity	4
	Datum A	Datum A
	Maximum axial length	221 mm maximum
	Shaft section length	38 +0/-0.31 mm
	Perpendicularity tolerance	Perpendicularity 0.08
	Bearing housing diameter	Ø114.3 +0/-0.05 mm
	Shaft diameter	Ø35 +0/-0.016 mm
	Perpendicularity to datum A	Perpendicularity to datum A
	Directional tolerance or surface finish	0.05 mm with direction indicator
	Feature dimension	3.2 mm
	Feature dimension	19 mm
	Shaft section length	65±1 mm
	Overall length	225.5±1 mm
	Keyway Depth	10mm
Mechanical View 2	Mounting flange outer diameter	Ø200
	Mounting hole angular distribution	45°
	Mounting hole diameter	Ø13.5
	Motor flange face width/height	180
Mechanical View 3	M6 threaded hole depth	M6 threaded hole, depth 10mm
Mechanical View 6	Connector Pin 1	Pin 1
	Connector Pin 4	Pin 4
Mechanical View 8	Connector pin number	Pin label: 4
	Connector pin number	Pin label: 7
	Connector pin number	Pin label: 1
	Connector pin number	Pin label: 5
Mechanical View 11	Torque-Speed curve key point 1	At 1700 rpm, torque is 57.3 N·m
	Torque-Speed curve key point 2	At 2000 rpm, torque is 19.1 N·m
	Torque axis label	Torque in N·m
	Torque scale 60	60 N·m
	Torque scale 50	50 N·m
	Torque scale 40	40 N·m

VIEW	FIELD	VALUE
Torque scale 30	30 N·m	
Torque scale 20	20 N·m	
Torque scale 10	10 N·m	
Speed scale 0	0 rpm	
Speed scale 500	500 rpm	
Speed scale 1000	1000 rpm	
Speed scale 1500	1500 rpm	
Speed scale 2000	2000 rpm	
Speed scale 2500	2500 rpm	
Speed axis label	Speed in rpm	
Intermittent operating zone label	Intermittent duty zone	
Continuous operating zone label	Continuous duty zone	

Overall Dimensions and Mounting Interface

PARAMETER	PUBLISHED VALUE	UNIT
Flange Size	180	mm

- Confirm the mounting face, locating feature, shaft geometry, fastener engagement and removal clearance against the applicable exact-SKU drawing.
- Mount the motor on a flat, rigid interface and avoid using fasteners to pull a misaligned assembly into position.

Shaft, Coupling and Load Path

PARAMETER	PUBLISHED VALUE	UNIT
Rotor Inertia	62.34 / 66.43( )	Kg·cm2

- Align the driven shaft and coupling before tightening; validate radial, axial and moment loads against applicable bearing-load data.
- Do not hammer, uncontrolled press-fit or transmit installation force through the motor bearings.

Electrical, Feedback and Brake Integration

PARAMETER	PUBLISHED VALUE	UNIT
Rated Voltage	96	VDC

- Use only the current winding, feedback, brake and connector definitions for this exact SKU.
- Verify drive compatibility, polarity, current limits, feedback direction and brake sequencing before enabling torque.

Thermal, Duty and Environmental Conditions

PARAMETER	PUBLISHED VALUE	UNIT
Rated Torque	19.1	N·m
Operating Temperature	-20 to 40	°C

- Validate winding and housing temperature under the installed duty cycle, ambient condition, mounting heat path and enclosure airflow.
- Published peak values are transient boundaries and must not be treated as continuous operating ratings.

Cable Routing, Grounding and EMC

- Provide strain relief and bend radius through the full machine motion envelope.
- Separate motor power, brake and feedback wiring and terminate shields according to the specified system grounding architecture.

Commissioning and Motion Validation

PARAMETER	PUBLISHED VALUE	UNIT
Rated Speed	2000	rpm
Rated Torque	19.1	N·m

- Commission at low energy with the transmission unloaded or safely restrained, then confirm direction, feedback polarity, brake final integration, current limit and fault response.
- Validate the complete axis through intended acceleration, speed, load, stop and fault cycles during integration planning.

Integration Checklist

01	Confirm the exact SKU, 2D drawing and applicable wiring data.
02	Verify mounting, shaft, coupling, alignment, fasteners and removal clearance.
03	Validate radial and axial loads, inertia, acceleration and credible shock cases.
04	Confirm drive, winding, feedback, brake and connector compatibility.
05	Set current, speed, acceleration and thermal limits from the installed duty cycle.
06	Verify cable routing, shielding, grounding, strain relief and bend radius.
07	Commission at low energy before validating the full machine cycle.

View SKU Product Datasheet Request controlled 2D drawing Request controlled STEP review Request a Quote

Engineering Use and Verification Notice

01. This Dimensional & Integration Guide applies only to EmbodyStack SKU ES-SM-L03-180G-V96-T19P1NM-4000W-002 and is intended for dimensional evaluation and preliminary integration. It is not a applicable manufacturing drawing, wiring definition, application approval, machinery risk assessment, safety validation or integration planning document. Before design freeze, machining, wiring or energization, verify all dimensions, tolerances, mounting and locating features, load boundaries, electrical interfaces, thermal conditions, cabling, grounding, protection, commissioning and applicable regulatory requirements against the applicable EmbodyStack engineering data for this exact SKU. Where this guide and applicable product documentation differ, the applicable product documentation governs. Validate the complete installed system under intended duty cycles, loads, accelerations, environmental conditions and credible fault cases.